THE EFFECTS OF CAREER BROADENING ON LEADERSHIP DEVELOPMENT

THESIS

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Abstract

The goal of this research was to improve the Air Force's knowledge of the effects of career broadening jobs on the leadership development of its officer corps. Specifically, the study sought to find significant relationships between incidents of career broadening in the officers' background and their odds of being selected for promotion and in-residence professional military education (PME). Selection under these two areas is considered recognition of an officer's ability to handle more responsibility and greater leadership challenges. Therefore, they are logical assessments of an officer's leadership development. Duty histories of officers who met the Major, Lieutenant Colonel, and Colonel promotions boards in 2004 and 2005, as well as, those officers who competed for selection to in-residence PME programs at the intermediate and senior development levels in 2003 and 2004, were analyzed to determine the impact on the odds of selection provided by career broadening experiences.

Results indicate that the Air Force needs to communicate the value of career broadening more effectively to its officers. Additionally, the developmental aspects of career broadening jobs should be explored in the future.

To Father and Mother

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I would like to express my sincere thanks to my advisor, Lt Col Kent Halverson for his guidance through this thesis process. He helped me expand my understanding of leadership and research that will benefit me for the rest of my professional life. I would also like to thank my sponsor, Lt Col John Haskin at the U.S. Air Force Headquarters office of Force Development. Without his endorsement this project would never have come to fruition.

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S. David Walker

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THE EFFECTS OF CAREER BROADENING ON LEADERSHIP DEVELOPMENT

I. Introduction

Introduction

In organizations where change is necessary, which is most organizations today, strong leadership relationships are required (Yukl, 2002). The rapidly changing environments of the twenty-first century that organizations have to survive and compete in require leadership development programs in which leaders will have to develop higher level leadership skills, develop new leadership competencies and refine old competencies (Yukl, 2002). Within the U.S. Air Force, the changing security environment began to point the way toward the Expeditionary Aerospace Force construct in which leaders at several levels would be required to have a balanced depth and breadth of the multitude of specialties within the Air Force in order to integrate effectively the contributions of these highly developed specialized competencies (Correll, 2001).

This begs the question; how does the Air Force develop leaders with the balanced depth and breadth? In 2001, the Air Force instituted the Developing Aerospace Leaders (DAL) initiative with the objective of growing more officers who understood and could apply a full range of aerospace capabilities and who could explain those capabilities to other service leaders, political leaders, and the public (Correll, 2001; Weaver, 2001). The DAL initiative hoped to achieve its objectives through developing depth of knowledge in the officer's career field as well as breadth of experience in the Air Force organization as a whole (Correll, 2001). Bass (1990) has suggested that learning from on-the-job

experiences may be just as effective as formal training and such experience can come from job rotation. Although the Air Force rotates officers every two to three years within their career field, this does not necessarily broaden officers in the Air Force organization as a whole. Therefore, the focus of this research effort will be on how job rotation, or more commonly referred to as career broadening in the Air Force, influences leadership performance in Air Force officers.

Development

Leadership ability is derived from three areas; personality, skills attained from formal training, and experience (Bass, 1990; Yukl, 2002; Van Wart, 2004; Collins and Holton, 2004; Mumford, Marks et al., 2000; Campion et. al., 1994; McCauley et. al., 1994). The relationship between personality and leadership is well established in the literature as indicated in meta-analysis between Big Five framework of personality and transformational leadership, which suggests that individuals with certain personality traits, such as extroversion, are more capable displaying transformational leadership behaviors (Judge & Bono, 2000; Bono and Judge, 2004). However, it is also commonly believed that leadership is a behavioral skill that can be learned through training. Barling, Weber, and Kelloway (1996) demonstrated that some transformational leadership behaviors could be trained. However, the leadership literature lacks extensive empirical research on the influence of prior job experiences (Campion et. al., 1994).

Yukl (2002) has suggested that one form of leadership development is developmental activities embedded within operational job assignments or conducted in conjunction with those assignments. Such job experiences can help individuals learn about building and leading teams, teach managers how think more strategically, and help

managers develop influence and communications skills (Conger, 2004). Job rotation can be one such developmental activity (Yukl, 2002). One of the positive effects of job rotation is that it increases identification with the organization as a whole and not just one area (Bass, 1990). McCall (2004) has suggested that one of the primary sources of learning to lead is experience, and experience through assignments rather than programs should form the core of executive development. Additionally, McCall (1992) has said the single most common tool for [executive] development is rotation across functions, divisions, departments, and countries. The Air Force has also supported the idea behind learning to lead through experience through similar policies for encouraging its officers to pursue career-broadening opportunities (Department of the Air Force, 2001; Department of the Air Force, 1996).

The necessity for career-broadening most likely originated by the gradual rise in occupationalism (Carroll, 2001; Thirtle, 2001) in which officers identified more with their career field (Moskos and Wood, 1988) thus creating functional "stove-pipes." However, even though Air Force instructions emphasize career broadening and encourage supervisors and mentors to promote career broadening to expand the experiences of their fellow officers (Department of the Air Force, 2001; Department of the Air Force, 1996), there seems to be little specific policy guidance on how career broadening should be used to deliberately develop leaders in the Air Force (Weaver, 2001). Consequently, there has not been an institutionally based construct for developing officers with the right leadership skills because the Air Force has chosen a more technology-focused approach to officer development leading to a focus in developing

leaders within their functional “stove-pipes” and hindered deliberate development of organizationally oriented leaders (Carroll, 2001; Thirtle, 2001).

Conclusion

The Air Force does broaden its officer in multiple disciplines. However, it is not known conclusively whether those officers are perceived as better leaders. The question remains, are officers who have engaged in career broadening assignments evaluated as better leaders through selection for promotion and developmental education opportunities? The Air Force could benefit from empirically grounded evidence on how career broadening influences leadership performance in its officer corps as measured by selection to several of the competitive leadership opportunities the Air Force offers.

This study will focus on officer duty history since it is a factor used in determining selection for promotion and in-residence professional military education (PME). More specifically, it will focus on whether a relationship exists between the number of assignments outside an officer’s Primary Air Force Specialty Code (PAFSC) and competitive leadership opportunities. The data used for this research will be duty histories of all Air Force officers who met Major, Lieutenant Colonel and Colonel promotion boards in 2004 and 2005 and PME in-residence selection boards for 2003 and 2004. The findings of this research could potentially be used to refine or enhance current officer development practices and determine the success of the career-broadening program.

II. Literature Review

Introduction

This chapter will explore the relevant literature on leadership development, the history of Air Force officer development, and reassess the old paradigms of leadership development in Air Force officers. First, we will examine the need for leadership development in organizations today, how leadership can be learned, how leadership skills can be learned through experience, and how job rotation can be a valuable experiential means of learning leadership. Then we will look at how occupationalism has influenced officer development throughout the history of the Air Force and why the Air Force has made efforts to change how it develops its leaders. Finally, the overall research hypothesis will be discussed in the context of the literature.

Leadership Development

Leadership development has become very important in today's organizations and more emphasis is being placed on leadership development than ever before (Hernez-Broome and Hughes, 2004). In the United States alone, leadership development has become a multi-billion dollar industry (Fulmer and Vicere, 1996). A meta-analysis conducted by Collins (2004) of 83 organizations' managerial leadership development programs seems to indicate that such interventions at all levels of the organization are beneficial at the individual, financial, and organization-wide levels. Furthermore, Day (2000) explains how the shear volume of publications on the subject characterizes the interest in leadership development.

The aim of leadership development initiatives are long-term skill acquisition (Hirst, et al., 2004). Although some personality traits influence leadership skills (Bono

and Judge, 2004; Judge and Bono, 2000), there is evidence that suggests that leadership skills can be learned (Hirst et al., 2004). Yukl (2002) cites several studies that indicate a critical competency for leadership is the ability to learn and adapt to change. Brown and Posner's (2001) analysis found strong support for the argument that one's ability to learn is related to their leadership ability. Mumford, et al. (2000b) put forth the notion that leadership potential can be found in many and that potential can be brought out through experience and the capability to learn and benefit from experience. Furthermore, the literature seems abound with examples of how job experience, rather than formal training, is the greatest source of gaining essential leadership skills (Yukl, 2002; Davies and Easterby-Smith, 1984; McCall, et al., 1988; McCall, 1988).

> Learning to be a leader is somewhat like learning to be a parent or lover; your childhood and adolescence provide you with basic values and role models. Books can help you understand what's going on, but for those who are ready, most of the learning takes place during the experience itself. (Bennis and Nanus, 1985)

Job Experience and Job Rotation

Since managers spend less than one percent of their time in class rooms learning how to be better leaders and managers it could be presumed that most of their development as leaders occurs on the job (McCall, et al., 1988). Some research supports the idea of developing leaders through experience as evidenced by McCall's, et al. study of 191 senior executives on what on-the-job experiences made them successful (McCall, et al., 1988). Job assignments that seem to offer the greatest developmental benefit to leaders incorporate unfamiliar responsibilities; the challenge to create change in the organization; gives the leader high levels of responsibility; requires the leader to manage relationships with customer, vendors, or internal components of the organization they

have no direct authority over; and deal with work force diversity issues (Ohlott, 2004). Mumford, et al. (2000a) has suggested that assignments where the leader has primary responsibility that present novel challenging problems and require working with others who have a different point of view may be valuable in developing leadership skills. Therefore, leadership development today means providing opportunities to learn from challenging job assignments rather than taking people away from work to learn (Hernez-Broome and Hughes, 2004).

It has already been mentioned that McCall (2004) believes that challenging work assignments, rather than formal training, is the most valuable tool for developing leadership skills and that job rotation should be at the core of developing such skills (McCall, 1992). Campion, et al. (1994) defines job rotation as "lateral transfers of employees between jobs in an organization." In his model for developing effective leadership development programs, Cacioppe (1998) suggest that job rotation should be included to give managers assignments in departments different from their previous experience in order to gain understanding of other aspects of the organization. Ohlott (2003) recommends job transitions as one of five sources for growing leaders and suggests that jobs which are highly dissimilar from previous work experience are likely to be the most developmental. Furthermore, transitioning into a job that is substantially different than a previous one may motivate the individual to perform at a higher level in an attempt to prove themselves to a new group of coworkers, making the experience developmental (Ohlott, 2004).

Both Yukl (2002) and Bass (1990) agree that job rotation programs are valuable tools for leadership development. Job rotation programs offer managers the opportunity

to be exposed to new types of technical problems they have not been previously exposed to, new processes in different functional areas of the organization, and interdependencies among these departments (Yukl, 2002). Leaders rotated from other functional areas are likely to bring new ideas and create better connections between the leaders' old and new departments (Bass, 1990). Despite the fact that both Yukl (2002) and Bass (1990) agree that job rotation is beneficial to leadership development, they both agree that there is a lack of empirical study into the developmental benefits of job rotation.

Some studies have added to the literature on the developmental benefits of job rotation. McCauley, et al. (1994) found that job transitions (or rotations) were highly correlated ($r = 0.28$, $p < 0.01$, $n = 692$) to the overall development of managers. The researchers also found that job rotation was strongly related to perceptions of learning because managers were allowed to try new behaviors and were exposed to new ways of thinking (McCauley, et al., 1994). The study conducted by Campion, et al. (1994) found strong correlations between the job rotation measure and the measures for career progression outcomes ($r = 0.37$, $n = 146$, $p < 0.05$) and career management outcomes ($r = 0.33$, $n = 250$, $p < 0.05$). The study also found modest support for improved knowledge and skills in administrative, technical and business areas of the organization as a result of job rotation programs (Campion, et al., 1994). Other benefits of Campion's, et al. (1994) study were career affect benefits, organizational integration benefits, stimulating work benefits, and personal development benefits.

Developing Aerospace Leaders

Thirtle (2001) suggests that Air Force history reveals a multitude of reasons why DAL is required. A reason offered in the literature for the "stove piping" of Air Force

officer's careers is the rise of occupationalism within the Air Force officer corps (Moskos and Wood, 1988; Builder, 1994; Thirtle, 2001). Airpower theories, championed by such great leaders as Generals Billy Mitchell, Ira Eaker, and Hap Arnold, were used as justification for a new Air Force department separate from the U.S. Army, but in doing so two "camps" were created within the new Air Force: the tactical and the strategic (Builder, 1994). The "strategic camp" in the Strategic Air Command was given more power and importance in the early years of the Air Force because it controlled the majority of the United States' nuclear arsenal and, therefore, dominated the further development of air power theory (Builder, 1994). The unifying vision of achieving the national security policy of nuclear deterrence provided by Air Force leadership of this time was fertile ground to grow leaders conversant in the broad area of air power theory and what the Air Force could provide to the nation (Builder, 1994). The "tactical camp" in the Tactical Air Command was largely left out of air power theory development and relegated to fill the roles the bomber community did not want, such as supporting the Army (Builder, 1994). The "strategic camp" began to lose their influence in the Air Force as new technologies were developed that made achieving the nuclear deterrence mission easier, such as the intercontinental ballistic missile (Builder, 1994). At the same time, a shifting focus in national security policy toward fighting limited wars gave the "tactical camp" the opportunity to rise to the top of Air Force leadership (Builder, 1994). Without a strong grounding in air power theory, the "tactical camp" leaders lost the unifying vision and began to focus more on the means (technology) of achieving the new missions, rather than the ends (air power theory) and the overall mission of the Air Force (Builder, 1994; Thirtle, 2001).

The differing reasons for embracing air power theory and the increasing reliance on technology created a situation that Moskos and Wood (1988) referred to as occupationalism, or a situation where an individual bonds more with their job specialty than with the organization as a whole (Thirtle, 2001). Air Force officers have been found to be more susceptible to the influences of occupationalism for several reasons (Moskos and Wood, 1988). Societal influences have forced a convergence of military and civilian organizational structure and function, such as the increasing use of civilian contracted companies to fill roles traditionally filled by military personnel (Moskos and Wood, 1988). This, in turn, created a redefinition of Air Force activities away from combat and unique flying function toward a more general management function (Moskos and Wood, 1988). This resulted in a civilianization of professional identities and commitments of military members (Moskos and Wood, 1988). Moskos and Wood (1988) found that 40 to 50 percent of junior officers consistently reported that they think of themselves as specialists working for the Air Force rather than as professional military officers.

Moskos and Wood (1988) recommend strong action on the part of Air Force leadership to regain the professional military identity in the officer corps. The DAL initiative hopes to achieve this recommendation by overcoming the traditional occupational "stovepipes" that have dominated officer professional development in recent years by developing officers who identify with and can articulate the unique capabilities the Air Force brings to the complex joint force equation, while at the same time preserve and foster aerospace power (Weaver, 2001). After all, history has shown that the greatest American military leaders went against the conventional career paths at

certain points in their careers and sought unconventional opportunities that expanded their experience and made them more useful to the military profession (Janowitz, 1960).

The Air Force rotates its officer corps through different positions over the course of the careers that follow a general path outlined in the Career, Education and Training Plan of every officer specialty (Department of the Air Force, 2004). This path typically exposes the officer to greater depth in their particular Air Force Specialty Code (AFSC) as they progress through their career. The general pattern of officer development does not expose officers to the multiple functional areas of the Air Force organization so this cannot be considered job rotation as it has been previously discussed. The Air Force obviously recognizes the benefits that true job rotation could offer:

> While our Air Force has revolutionized warfare and proven that aerospace power, when employed by a motivated and highly skilled force, is an instrument of power to be reckoned with, we cannot be complacent. Because the leadership skills to forge the many aspects of aerospace into a coherent fighting force are critical to success, we must continue to attract, retain and develop officers with the competencies to lead the Air Force in this dynamic, changing environment. (Ryan, 1999)

The Developing Aerospace Leaders (DAL) initiative is the Air Force's answer to leadership development that integrates an appreciation for the value of developing leaders with broader experience of multiple competencies and who can think in terms of exploiting the entire aerospace continuum of information, air, and space operations (Thirtle, 2001). DAL's charter is to examine and recommend actions necessary to prepare Airmen for twenty-first century leadership (Weaver, 2001). Thirtle (2001) goes on to say,

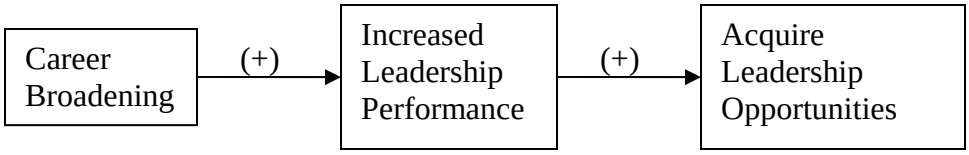
> "DAL objectives include establishing processes and procedures that build a senior leadership corps able to:

- understand national security interests and fully exploit the aerospace domain to support national objectives;
- develop, cultivate, and maintain operational competence in the medium of aerospace;
- envision, develop, acquire, sustain, support, and employ capabilities that exploit the aerospace domain to create military effects; and
- communicate the absolute and relative value of aerospace capabilities to the American people and their representatives."

This means deliberately developing leaders with the desired mix of aerospace power competencies who understand the full spectrum of aerospace expeditionary forces and aerospace operations, and who can articulate these capabilities in a wide range of assignments, regardless of their core specialty (Weaver, 2001). The Air Force typically refers to assignments meant to give breadth of experience in the Air Force organization as career broadening (Department of the Air Force, 1996). For the purposes of this study, job rotation and career broadening will be synonymous.

The literature reviewed above gives support for job rotation. In organizations where job rotation occurs, individuals who engage in job rotation activities seem to have better career outcomes and more opportunities for advancement. In addition, there is empirical support for job rotation program's benefit to leadership development in managers. It has also been shown that the Air Force recognizes the need for more broadly oriented leadership and has begun to deliberately develop its leaders through the DAL initiative. The question remains, is the DAL scheme creating the pool of leaders the Air Force needs? If the DAL program is working as intended then those officers with career-broadened backgrounds should have an increased likelihood of being selected for competitive leadership opportunities. Figure 1 presents a model of this concept.

Figure 1



It is important to note that this model is substantially simplified. Other factors may have greater influence on an officer's chances of acquiring leadership opportunities. Such factors include job performance as documented in officer performance reports, scope of responsibility in past assignments, academic and professional military education, and awards and decorations (Department of the Air Force, 1996). The most important of these factors is job performance (Department of the Air Force, 1996). However, the influence of breadth of experience is the focus of this study.

Two competitive leadership opportunities in the Air Force are selection for promotion and selection to an in-residence professional military education (PME) program commensurate with the officer's rank. PME is meant to build the skills necessary to employ aerospace power in war and small-scale contingencies, provide the skills and knowledge to make sound decisions in progressively more demanding leadership positions within the national security environment, and develop strategic thinkers and warfighters (Department of the Air Force, 2002). The fundamental purpose of the officer promotion program is to select officers through a fair and competitive selection process that advances the best-qualified officers to positions of increased responsibility (Department of the Air Force, 2004b). Promotion is not a reward for past

service, but an advancement to a higher grade based on past performance and future potential (Department of the Air Force, 2004b).

Selection for promotion and in-residence PME is done through boards convened at the Air Force Personnel Center. The members of these boards are senior Air Force officers from various career fields. The selection board members base their selection on a subjective assessment of the individual officer's relative potential known as the "whole person" concept (Department of the Air Force, 2004b). Each officer's entire selection record is reviewed to assess such factors as job performance, professional qualities, leadership, job responsibility, depth and breadth of experience, specific achievements, and academic and professional military education (Department of the Air Force, 2004b).

Given the research on the benefits of career broadening, it is logical to believe that Air Force officers who have undertaken career-broadening assignments have performed to a level that would warrant the investment of further professional education and promotion. Therefore, the following hypotheses may apply:

H1: Career broadening is positively related to selection for promotion

H2: Career broadening is positively related to selection for in-residence PME

There are a few negative results of job rotation that should be noted. Diminished satisfaction and motivation in non-rotating employees were created due to possible resentment of rotating employees and increased workloads (Campion, et al., 1994). Bass (1990) believes that laissez-faire leadership attitudes will arise in leaders who know they will be rotated from their current job in the near future. A loss of productivity on the rotated employee may also occur as a result of the normal learning curve and a lack of

technical expertise in a new functional area may also reduce subordinate expertise as well (Campion, et al., 1994; Yukl, 2002).

These negative aspects of career broadening, along with long-term tendencies toward occupationalism, may apply in the Air Force organization. Senior leaders in the Air Force who make the promotion and PME selection decisions may see career broadening as a detriment to the individual's career development and expertise building within the officer's career field. In addition, certain jobs designated as career broadening jobs in the Air Force must be manned at a certain level. Senior leaders may resent having to send people to perform these jobs outside their vocation. Therefore, the following hypotheses may apply:

H3: Career broadening is negatively related to selection for promotion

H4: Career broadening is negatively related to selection for in-residence PME

Conclusion

The literature indicates many benefits of job rotation programs exist to develop leadership skills in managers. The experience seems to offer a valuable source of learning leadership skills that may not otherwise be learned. However, little empirical analysis has been conducted on the effects of job rotation in organizations. The last empirical studies were conducted over 10 years ago. Despite the lack of scientific support for job rotation, organizations seem to realize the benefits such programs can offer in developing a pool of leaders. The Air Force has recognized the need for deliberate leadership development by initiating the DAL program. This study hopes to contribute to body of literature on job rotation by analyzing how the Air Force rewards those with broader organizational experiences with more leadership opportunities.

III. Methodology

Introduction

Officer assignments are determined through a vectoring process determined by teams of senior officers from every career field in the Air Force (DPAFF Study Guide to Force Development, 2005). These teams, known as Development Teams (DT), direct an officer's development through assignment selection. Inputs from each officer, as well as inputs from each officer's rating official, are used in determining what types of assignments would be beneficial to the officer, their career field, and the Air Force. The DTs vector officers by year groups at six trigger points in their career: promotion to Major, promotion to Lieutenant Colonel, Intermediate Developmental Education (IDE) and Senior Developmental Education (SDE) eligibility windows, squadron commander nomination, or senior rater initiated review. This research project is focused on four of these trigger points: promotion to Major, promotion to Lieutenant Colonel, IDE eligibility, and SDE eligibility. Additionally, promotion to Colonel is included to give a larger cross section of officers meeting competitive boards.

This chapter addresses how the research hypotheses presented in Chapter 2 will be tested. First, the data will be described. This will include the sources of the data used in this study, as well as the sampling procedure and what items were coded. Following this, a description of the dependent and independent variables will be covered and how they were coded. Finally, a discussion of the analysis procedure will be provided.

Data Description

The data used for this research project were duty histories of Air Force officers who were considered for promotion to the ranks of Major, Lieutenant Colonel, and

Colonel during the 2004 and 2005 promotion selection boards. Also included, were duty histories of every officer who was eligible and selected for the 2003 and 2004 in-residence IDE and SDE selection boards. These board results provide a wide cross section of Air Force officers upon which to base the analysis.

The Air Force Personnel Center (AFPC) Data Retrieval office was provided the duty histories of the target population. The Promotion Division and Developmental Education Branch within AFPC transmitted the lists of individuals who were considered and selected for the various promotions and in-residence developmental education programs boards directly to the Data Retrieval office. The Data Retrieval office then compiled the duty histories of these individuals into separated lists according to the board and transmitted those lists to the researcher. Table 1, on the following page, is an example of one officer's history provided by AFPC. At no time was private information transmitted to the researcher.

The Data Retrieval office at AFPC transmitted 12 separate files containing the duty histories of all the officers who met the boards. The files were separated according to board and year, with the exception of the IDE and SDE boards. The two boards for 2003 and 2004 were combined into one file for each in-residence Professional Military Education (PME) boards. For the Lieutenant Colonel and Colonel promotion boards, the list of officers being considered for promotion below the primary zone (BPZ) were separated from those meeting their in- and above-the-primary zone (IPZ and APZ, respectively) because the BPZ records are scored separately from the IPZ and APZ records (Department of the Air Force, 2004b).

Table 1: Example Duty History

8-3 PAFSC/CORE ID: K11M3A/ GENDER: MALE RACE: WHITE BOARD/ZONE: P0505A APZ/IPZ SELECTED: S GRADE: (05) LTC COM CAT: (A) LINE

EDD	DAFSC	DUTY TITLE		ORGANIZATION		CMD		CL	SPECIALTY	YEARS
10FEB06	-11M3L	OPERATIONS SUPV/C-20H PILOT	76	AIRLIFT	SQUADRON	AFE RAMSTEIN	GERM	WB M		0.8
08OCT04	Q11M3A	CHIEF, WG CMD POST; C-5 FTU EP	56	AIRLIFT	SQUADRON	AET ALTUS	OK	WB M		1.3
08MAY03	Q11A3A	ADO/C-5 CCTS EXAMINER PILOT	56	AIRLIFT	SQUADRON	AET ALTUS	OK	WB A		1.4
29MAY02	T11A3A	ADO/C-5 CCTS INSTRU PILOT	56	AIRLIFT	SQUADRON	AET ALTUS	OK	WB A		0.9
01MAY01	S11A3A	C-5 IAC; DPTY CHIEF, WG SAFETY	436	AIRLIFT	WING	AMC DOVER	DE	WB A		1.1
15MAY00	11A3A	CHIEF, WG FLYING SAFETY; C-5 AC	9	AIRLIFT	SQUADRON	AMC DOVER	DE	WB A		1.0
05MAR99	11A2A	FLIGHT COMMANDER; C-5 PILOT	9	AIRLIFT	SQUADRON	AMC DOVER	DE	WB A		1.2
23SEP98	K11A3F	C-21A IP/ASST OPS OFFICER	332	AIRLIFT	FLIGHT	AMC RANDOLPH	TX	WB A		0.4
03APR98	K11A3F	C-21A IP/CH SCHEDULER	332	AIRLIFT	FLIGHT	AMC RANDOLPH	TX	WB A		0.5
30JAN98	11A3F	C-21A ACFT CDR/CH SCHEDULER	332	AIRLIFT	FLIGHT	AMC RANDOLPH	TX	WB A		0.2
25NOV96	11A3F	C-21A ACFT CDR/PLT RESOURCE MGR	332	AIRLIFT	FLIGHT	AMC RANDOLPH	TX	WB A		1.2
13JUN96	11A3F	C-21A ACFT CMDR/12 OG ADPE CUST	332	AIRLIFT	FLIGHT	AET RANDOLPH	TX	WB A		0.5
13OCT95	11A3F	C-21A PILOT/12OG ADPE CUSTODIA	332	AIRLIFT	FLIGHT	AET RANDOLPH	TX	WB A		0.7
30JAN95	92T0	ST CRS P-V4A-B CL95-12	AFST 25	FLYING TRAINING	SQUADRON	AET VANCE	OK	ST P		0.7
15JUL94	92T0	ST CRS P-V4A-A CL95-12	AFST 8	FLYING TRAINING	SQUADRON	AET VANCE	OK	ST P		0.5
21OCT92	X13B3B	WEAPONS DIRECTOR	965	AIRBORNE AIR CTRL	SQUADRON	ACC TINKER	OK	WB A		1.7
24AUG92	G1741G	AWACS STUDENT	965	AIR CONTROL	SQUADRON	ACC TINKER	OK	WB A		0.2
01JUN92	G1741G	AWACS STUDENT	552	TRAINING	SQUADRON	ACC TINKER	OK	WB A		0.2
04MAR92	G1741G	AWACS STUDENT	552	TRAINING	SQUADRON	TAC TINKER	OK	WB A		0.2
03DEC91	G1741G	AWACS STUDENT	552	TACTICAL TRAINING	SQUADRON	TAC TINKER	OK	WB A		0.3
15OCT91	1741H	STUDENT	325	FIGHTER	WING	TAC TYNDALL	FL	ST A		0.1
20MAY91	1741G	STUDENT	325	TACTICAL TRAINING	WING	TAC TYNDALL	FL	ST A		0.4

In addition, the IPZ and APZ records are scored at the same time so those records were included in one file. This study assumes that the boards did not introduce any negative bias toward APZ records.

A random sampling was taken from each file. A series of uniform random numbers between one and the total number of pages in each file were generated. Then one to two records were selected from those pages for coding. Table 2 shows how many records were in each file and the number of records that were selected from the population. The numbers in parentheses are the percentages of selects and non-selects for each file and sample data set.

Table 2: Population and Sample Sizes

File Name	Total Number of Records in File (%selected/%non-select)	Sample Size (%selected/%non-select)
2004 Major Promotion Board	2891 (77.6/28.4)	99 (84.8/15.2)
2005 Major Promotion Board	2541 (76.9/23.1)	100 (81/19)
2004 Lt Col BPZ Promotion Board	3043 (5/95)	100 (11/89)
2004 Lt Col I/APZ Promotion Board	3932 (33/67)	102 (45/55)
2005 Lt Col BPZ Promotion Board	3081 (4/96)	101 (12/88)
2005 Lt Col I/APZ Promotion Board	3499 (32/68)	100 (48/52)
2004 Col BPZ Promotion Board	2136 (3/97)	100 (13/87)
2004 Col I/APZ Promotion Board	1739 (22/78)	100 (41/59)
2005 Col BPZ Promotion Board	2418 (2/98)	100 (11/89)
2005 Col I/APZ Promotion Board	1712 (20/80)	100 (34/66)
2003 and 2004 IDE Boards	10,150	201 (33/67)
2003 and 2004 SDE Boards	6207	141 (23/77)

The random sample is somewhat biased toward selected versus non-selected.

Only duty titles with a corresponding effective duty date before the date of the board from which the sample was taken were considered. The dates each board was held are listed in Table 3 below.

Table 3: Board Dates

Board	Date
2004 Major Promotion Board	1 November 2004
2005 Major Promotion Board	5 December 2005
2004 Lt Col BPZ Promotion Board	12 July 2004
2004 Lt Col I/APZ Promotion Board	12 July 2004
2005 Lt Col BPZ Promotion Board	6 July 2005
2005 Lt Col I/APZ Promotion Board	6 July 2005
2004 Col BPZ Promotion Board	6 December 2004
2004 Col I/APZ Promotion Board	6 December 2004
2005 Col BPZ Promotion Board	12 September 2005
2005 Col I/APZ Promotion Board	12 September 2005
2003 and 2004 IDE Boards	22 October 2004
2003 and 2004 SDE Boards	22 October 2004

Since the data was retrieved from existing sources several major problems encountered from using survey data will be avoided. Empirical data is much more objective, reliable, and free of potential personal bias than survey data. Additionally, non-response bias will be avoided allowing for a much richer data set.

Measures

The dependent variable for this study is the dichotomous variable indicating selection for either promotion or attendance to PME. In each case, the individual was either selected or not selected for promotion or for in-residence PME.

In order to identify occurrences of career broadening in the samples of duty histories, research was done to determine what assignments are considered career broadening. First, career-broadening assignments are listed in Air Force Instruction (AFI) 36-2611, Officer Professional Development (Department of the Air Force, 1996). The possibility existed that this AFI did not cover all possible career broadening assignments. Consultation was conducted with a panel of 27 Air Force Majors from

various career backgrounds to validate the list of career broadening assignments in AFI 36-2611 and expand the list of possible career broadening assignments. Additionally, career broadening could include job rotations that are both lateral and higher in importance and responsibility within the Air Force organizational structure. Thus, the possibility existed that each career broadening assignment had a different impact on an officer's career outcomes and leadership development. This is called "career-broadening prestige." The same panel of Majors was also consulted on how they would rate each career broadening assignment's prestige.

Two objectives were met by engaging the panel of Majors on their views of career broadening within the Air Force. The first objective was to categorize several jobs as to whether or not they were perceived as career broadening experiences. Most of the Majors in the panel agreed that any job that differed from a person's primary AFSC was a career broadening experience. The only exceptions the panel had to this were in cases where career pilots or navigators were in instructor assignments at undergraduate pilot or navigator training. In certain instances, individuals began their Air Force career in one AFSC and then permanently transitioned to another AFSC at some point. This is termed re-training or re-coring. The panel of Majors agreed that re-training into another AFSC is a form of career broadening. Additionally, the majority of them agreed that assignments as an executive officer to a Group commander were not career broadening experiences. Furthermore, the panel also reported that pursuit of graduate education through the Air Force Institute of Technology was not a career broadening experience despite the fact that it is listed in chapter 9 of AFI 36-2611, Officer Professional Development (Department of the Air Force, 1996) as a career broadening opportunity. Finally, the

career broadening assignments identified in chapter 9 of AFI 36-2611 were also validated by the panel. These AFSC, and their corresponding descriptions, are listed in Table 4 below.

Table 4: Career Broadening AFSCs and Duty Titles

AFSC	Description
97E0	Executive Officer above the Wing level
88A0	Aide-de-Camp, or Military aides to General officer
91C0	USAF ROTC Detachment commander
92S0	Student – AFIT, Olmstead Scholar, AF Intern Program, Education with Industry, Defense Language Institute
80C0	USAF Academy Cadet Squadron commander
81C0	Officer Training School Training Commander
81T0	Instructor – AFIT, USAF Academy, SOC, ACSC, AWC, USAF ROTC, OTS
82A0	Academic Program Manager – AFIT, USAF Academy, SOC, ACSC, AWC, USAF ROTC, OTS
83R0	Recruiting Services
86M0	Operations Management officer, Wing level
86P0	Command and Control officer, Wing level
87G0	Inspector General
88P0	Protocol Officer
16G4	USAF Operations Staff officer
16P4	International Politico-Military Affairs Staff officer
16R4	Defense Planning and Programming Staff officer
16F4	Defense Air Attaché officer
33S3	Executive officer to Wing commander
21XX	Logistics Career Broadening Program
95A0	USAF Reserve or Civil Air Patrol Liaison officer

Additional support for considering a wide range of career broadening possibilities could also be derived from the literature on selection for promotion and in-residence PME in the Air Force. Selection criteria are based on the "whole person" concept discussed in chapter 2. Any job in an individual's duty history that significantly differed from the primary career field had to be considered a breadth-of-experience building event. Due to

these factors, it was necessary to consider a wide range of jobs as career broadening experiences.

The second objective sought from consulting the panel of Majors was to obtain a measure of prestige for each career-broadening occurrence. Inputs from the panel produced quantitative measures of the level of prestige each career-broadening experience had on a person's career and leadership development. These measures are applied to each instance of career broadening in the data sample and then summed together to attain the overall level of prestige of career broadening for each case in the data samples. This is the second independent variable of interest in this study. Table 5 lists each quantitative measure applied to each career-broadening assignment.

Table 5: Career Broadening Prestige Measures

AFSC	Description	Measure
97E0	Executive Officer above the Wing level	**7.8**
88A0	Aide-de-Camp, or Military aides to General officer	**7.2**
88A0	Military aides to the Executive Branch	**8.4**
91C0	USAF ROTC Detachment commander	**4.8**
92S0	Student – Olmstead Scholar, AF Intern Program	**6.7**
92S0	Education with Industry, Defense Language Institute	**5.3**
80C0	USAF Academy Cadet Squadron commander	**5.9**
81C0	Officer Training School Training Commander	**4.8**
81T0	Instructor – AFIT, USAF Academy	**4.2**
81T0	Instructor – SOC, ACSC, AWC	**4.0**
81T0	Instructor – USAF ROTC, OTS	**4.4**
82A0	Academic Program Manager – AFIT, USAF Academy, SOC, ACSC, AWC, USAF ROTC, OTS	**2.9**
83R0	Recruiting Services	**3.0**
86M0	Operations Management officer, Wing level	**4.5**
86P0	Command and Control officer, Wing level	**4.5**
88P0	Protocol Officer	**4.4**
16G4	USAF Operations Staff officer	**4.7**
16G4	Speech Writer/Special Action Officer to Four-Star General and above	**7.8**
16P4	International Politico-Military Affairs Staff officer	**6.2**
16R4	Defense Planning and Programming Staff officer	**4.7**
16R4	Legislative Liaison	**7.1**
16F4	Defense Air Attaché officer	**5.5**
33S3	Executive officer to Wing commander	**6.6**
11FX	USAF Air Demonstration Pilot (Thunderbirds)	**6.1**
21XX	Logistics Career Broadening Program	**5.1**
XXXX	Re-Trained into another AFSC	**3.9**
XXXX	Job with different AFSC that is NOT re-training	**5.4**

Conceptually, a possible interaction between the numbers of career broadening assignments an individual undertook and the sum of those assignments' prestige measure may exist. Therefore, the interaction between the number of career broadening assignments and the "career broadening prestige" variable was investigated.

There were 20 additional measures included in this study. These measures were chosen because they are aspects of an individual's duty history and career progression that may have the potential of influencing the dependent variable. Each of these variables will be investigated and included in the regression models as necessary. These variables included the number of different jobs titles each individual had in their duty history and the total number of bases each individual had been assigned to prior to the board date. Additionally, the following dichotomous variables were also recorded:

The year the board was held (for promotion boards only)
The promotion zone of the board (for Lt Col and Col only)
Re-trained from another AFSC
A prior squadron commander
A squadron commander at the time they met the board
A rated officer (held a primary AFSC for either a pilot or navigator)
Was an executive officer at some point in their career
An executive officer at the time they met the board
Completed in-residence IDE program prior to board
Completed in-residence SDE program prior to board
An assignment at Joint forces staff
An assignment at Air Force Headquarter
An assignment at a Major Command staff
An assignment at a Numbered Air Force staff
An assignment at Joint forces staff at the time they met the board
An assignment at Air Force Headquarter at the time they met the board
An assignment at a Major Command staff at the time they met the board
An assignment at a Numbered Air Force staff at the time they met the board

Procedure

The method of testing the hypotheses stated in chapter 2 is multivariate logistic regression modeling. This analysis method is most appropriate given the fact the dependent variable is a dichotomous variable. Five regression models were developed using the measures stated above. Data for each of the 2004 and 2005 promotion boards listed in Table 2 were combined and analyzed using regression modeling. Additionally,

for the Lt Col and Col promotion board data sets, the BPZ and I/APZ data were included in one data set for each grade's promotion board. The IDE and SDE board data were modeled separately. By including the two board years for each rank and PME level, as well as the appropriate BPZ and I/APZ data, the overall sample size increased for each regression model. Additionally, the results of the analyses will be more applicable to determining the general view of career broadening shared by Air Force leaders. The level of influence of the "number of career broadening assignments," "career-broadening prestige measure," and interaction between these two variables were used to answer the research hypotheses.

Analysis

The focus of this analysis was on whether individuals were selected for competitive leadership opportunities. Therefore, the dependent variable in the proceeding models was the dichotomous variable, "selected." Coding for this variable was zero if the individual was not selected and one if they were selected. Logistic regression was applied in the analyses, as the dependent variable is dichotomous.

When calculating the beta coefficients for the model's parameters, there is a key difference between logistic and linear regression. Linear regression relies on the least square estimates to calculate the beta coefficients. Logistic regression uses the maximum likelihood estimators that are calculated by taking the natural logarithms of the likelihood functions to obtain coefficients that most closely agree with the observed data (Hosmer and Lemeshow, 2000). The Wald test was used to determine the statistical significance of each coefficient. A transformed beta coefficient is presented in each table of Appendix A. This coefficient is the exponentiated beta coefficient (Exp β) or the odds

ratio. The odds ratio is the percentage change in the dependent variable given a one-unit increase in the independent variable (Hosmer and Lemeshow, 2000). The odds ratio was used to determine the relationship between the dependent variable and the career broadening independent variables in order to answer the hypotheses.

To test the overall usefulness of the models, two methods were used. First, the Hosmer and Lemeshow goodness-of-fit test was used to calculate a test statistic that is tested using the chi-square method (Hosmer and Lemeshow, 2000). The null hypothesis of this test is the model is well fitted, therefore any p-value returned by the test that is greater than .05 is consider evidence that the model is well fitted to predicting the dependent variable. The second goodness-of-fit test is the overall classification percentage from classification tables. This table is the result of cross classifying the outcome variable with a dichotomous variable whose values are derived from the estimated logistic probabilities (Hosmer and Lemeshow, 2000). These probabilities are used to classify cases into two groups according to a cut-point (cut-point used in this analysis is 0.5). The overall percentage reports the percentage of cases that were correctly classified. Presumably, if the model predicts group membership accurately, then this is thought to provide evidence that the model fits (Hosmer and Lemeshow, 2000).

Chapter IV: Results and Analysis

Introduction

This chapter will present the results of the regression models developed to test the hypotheses discussed in chapter 2. Two models were developed using logistic regression for each of the five boards with the variable Selected as the dependent variable for each model. After running each regression model considering all variables mentioned in chapter 3, the models were refined by removing variable that were not statistically significant and potentially diminished the goodness-of-fit of the model to predict the dependent variable. The results of the promotion boards' regression models are presented first, followed by the Professional Military Education (PME) boards' regression models.

Promotion Board Analyses

The following is an explanation of each of the three analyses concerned with promotion in Air Force officers. Two models were prepared for each of the promotion board data sets. The first model includes all relevant variables for the rank level of the promotion board. The second model excludes any variables that are non-significant and diminish the fit of the model. Explanations will be offered as to why these excluded variables might be non-significant.

For the first Major board regression, 20 of the 23 independent variables were selected for this model. The variables "Prior in-residence Intermediated Developmental Education (IDE)", "Prior in-residence Senior Developmental Education (SDE)", and "promotion board zone" were omitted because individuals meeting this board are ineligible for these programs and there is no below-the-primary-zone (BPZ) board for the

Major's board. Samples taken from the 2004 and 2005 boards were combined for this analysis (n= 199). Table A1 lists the coefficients of the first and second regression analyses of the Major board data.

Model 1 in Table A1 does not appear to be a well-fit model. The Hosmer and Lemeshow's goodness-of-fit test statistics are χ^2 = 19.91, p= .011, 8 df. The model correctly classified 86.9 percent of the cases. Despite this lack of fit, the model indicated statistically significant relationships between the dependent variable and the two career broadening variables of interest. The Exp β coefficient for the "number of career broadening jobs" variable indicates an officer's odds of being promoted to Major are multiplied by .02 (or decreased by 98%: 1-.02) for each additional career broadening assignment they undertake (p<.05). Additionally, for every 1-unit increase in an officer's "career broadening prestige" measure their odds of being promoted to Major increases by a factor of 2.248 (p<.05) indicating a significant positive relationship (or a 124.8% increase: 2.248-1).

After removing the non-significant variables, Model 2 was found to be a better fitting model. The Hosmer and Lemeshow's goodness-of-fit test statistics are χ^2 = 6.654, p= .466, 7 df and the model correctly classified 85.4 percent of the cases. Since Model 2 also had statistically significant results for the "number of career broadening jobs" and "career broadening prestige" variables, it was used to answer the research hypotheses. Using Model 2, we can see that for each additional career-broadening assignment a person undertakes officers are .025 times as likely to be promoted to Major (p<.05), indicating a negative relationship (or a decrease of 97.5%). Additionally, for every unit

increase in an officer's "career-broadening prestige" score they are 2.189 times as likely to be promoted to Major ($p<.05$). The interaction between the "career broadening prestige" variable and "number of career broadening jobs" variable is also not statistically significant.

The Lieutenant Colonel (Lt Col) promotion board regression analysis used 22 of the 23 independent variables. Only the "Prior in-residence SDE" variable was excluded because individuals meeting this board are not eligible for these programs. This regression analysis incorporated samples from the 2004 and 2005 BPZ and in- and above-the-primary-zone (I/APZ) promotion boards (n= 403). Table A2 lists the coefficients of the first and second regression analyses of the Lt Col board data.

Both models in Table A2 appear to be well fitting models. Model 1's Hosmer and Lemeshow test statistics are $\chi^2 = 8.189$, p= .415, 8 df and 81.9 percent of the cases are classified correctly. Model 2's Hosmer and Lemeshow test statistics are $\chi^2 = 7.078$, p= .528, 8 df and 83.1 percent of the cases are classified correctly. Additionally, the variable "number of career broadening jobs" was not statistically significant in either model. However, the "career broadening prestige" variable was statistically significant in both models. Since Model 2 is a better fitting model than Model 1, it was used to answer the hypotheses. Model 2 of the Lt Col promotion board analysis indicated that officers' odd of being promoted to this rank increase by a factor of 1.43 (or increases by 43%) for each additional point of "career broadening prestige" they achieve ($p< .05$). The interaction between the "career broadening prestige" variable and "number of career broadening jobs" variable is also not statistically significant in both Lt Col promotion board models.

This implies that highly prestigious career broadening jobs increase an officer's chances of being promoted to Lt Col.

In the first regression model of the Colonel (Col) promotion board data, all 23 of the independent variables were used. This regression analysis incorporated samples from the 2004 and 2005 BPZ and I/APZ promotion boards (n= 400). Table A3 lists the coefficients of the first and second regression analyses of the Col board data.

Both models in Table A3 appear to be well fitting models. Model 1's Hosmer and Lemeshow test statistics are $\chi^2 = 8.262$, p= .408, 8 df and 84.8 percent of the cases are classified correctly. Model 2's Hosmer and Lemeshow test statistics are $\chi^2 = 6.037$, p= .643, 8 df and 85.0 percent of the cases are classified correctly. Additionally, the "number of career broadening jobs" and "career broadening prestige" variables were statistically significant in both models. Since Model 2 is a better fitting model than Model 1, it was used to answer the hypotheses. For each additional career broadening assignment officers undertake, Model 2 shows an officer's chances of being promoted to Col decrease by 84 percent (Exp β = .16, p< .05). Additionally, officers' odds of promotion are increased by a factor of 1.38 (or increases by 38%) for every 1-unit increase in their "career broadening prestige" measure (p< .05). The interaction between the "career broadening prestige" variable and "number of career broadening jobs" variable is also not statistically significant in both Col promotion board models.

An interesting contradiction has been shown in the promotion board models pertaining to the two career broadening variables of interest. Sufficient evidence exists to say that a negative relationship exists between the "number of career broadening jobs"

variable and the dependent variable. Additionally, the models show significant evidence that a positive relationship exists between the "career broadening prestige" variable and selection for promotion.

PME Board Analyses

The following is an explanation of the two analyses concerned with selection to in-residence PME programs. Two models were prepared for each of the PME board data sets. The first model includes all relevant variables for the PME type. The second model excludes any variables that are non-significant and diminish the fit of the model.

The IDE data set included sample duty history from officers considered for in-residence IDE programs in 2003 and 2004 (n= 201). The first regression model of the IDE data set, presented in table A4, includes 19 of the 23 independent variables stated in chapter three. The "Prior IDE" and "Prior SDE" variables were excluded, as the individuals meeting this board are ineligible for these programs. The "Board Year" and "Board Zone" variables were also excluded, as these variables are not applicable to this data set.

Both models in Table A4 appear to be well fitting models. Model 1's Hosmer and Lemeshow test statistics are χ^2 = 12.923, p= .115, 8 df and 71.1 percent of the cases are classified correctly. Model 2's Hosmer and Lemeshow test statistics are χ^2 = 5.913, p= .550, 7 df and 70.6 percent of the cases are classified correctly. Since Model 2 is a better fitting model than Model 1, it was used to answer the hypotheses. Both models indicated that the "number of career broadening jobs" and "career broadening prestige" variables were statistically non-significant. Additionally, the interaction between these two

variables was not significant. This indicates that incidents of career broadening do not have any impact on one's chances to be selected for in-residence IDE programs.

The SDE data set included sample duty history from officers considered for in-residence SDE programs in 2003 and 2004 (n= 141). The first regression model of the SDE data set, presented in table A5, includes 20 of the 23 independent variables stated in chapter three. The "Prior SDE" variable was excluded, as the individuals meeting this board are ineligible for these programs. The "Board Year" and "Board Zone" variables were also excluded, as these variables are not applicable to this data set.

Model 1 in Table A5 does not appear to be a well-fit model. The Hosmer and Lemeshow's goodness-of-fit test statistics are $\chi^2 = 17.464$, p= .026, 8 df. The model correctly classified 87.9 percent of the cases. After removing the non-significant variables, Model 2 is a better fitting model. The Hosmer and Lemeshow's goodness-of-fit test statistics are $\chi^2 = 3.286$, p= .857, 7 df and the model correctly classified 83.0 percent of the cases. Since Model 2 is a better fitting model than Model 1, it was used to answer the hypotheses. Both models indicated that the "number of career broadening jobs" and "career broadening prestige" variables were statistically non-significant. Additionally, the interaction between these two variables was not significant. This indicates that incidents of career broadening do not have any impact on an officer's chances to be selected for in-residence SDE programs.

Unfortunately, these models can support none of the hypotheses dealing with selection to in-residence PME. In each case, the variables for the "number of career broadening jobs", the "career broadening prestige," and the interaction between the two

were statistically non-significant. This indicates that incidents of career broadening have no impact on selection for competitive in-residence PME programs.

Conclusion

The results of the regression models seem to support a general positive relationship between career broadening and selection for promotion. Statistically significant results were found between incidents of high prestige career broadening jobs and selection for promotion at the three Air Force officer ranks used in this study. Unfortunately, there is insufficient evidence to indicate that career broadening is recognized as a benefit when selecting someone for competitive in-residence PME programs. Interpretations of these and the promotion board results will be discussed further in the following chapter.

Chapter V: Discussion

Introduction

This chapter discusses further the results presented in chapter 4. The discussion focuses on theories pertaining to why certain variables were and were not significant in the regression models. Furthermore, the results were used to determine which of the four research hypotheses presented in chapters two and three will be supported. Limitations to this study are also presented. Additionally, a discussion on other statistically significant variables is provided. Finally, potential future research avenues are addressed.

Promotion Boards

It is clear from the logistic regression models on the promotion board data that career broadening jobs that provide the greatest perceived prestige to career and leadership development offer increased odds of promotion. People who engage in these high prestige assignments are exposed to the highest levels of the decision-making chain within the Air Force organization, as well as with in the Department of Defense and government. The most beneficial career broadening assignments offer direct interface to leaders at the highest and most influential levels of the Air Force as well as exposure to dealing with foreign military and diplomatic affairs. Members of promotion boards seem to recognize that individuals who pursue these types of experiences increase their leadership skill sets and improve their abilities to solve the kind of novel, ill-defined problems leaders of the future will face.

However, there is some indication that occupationalist tendencies still exist. The models show that the more career broadening assignments someone undertakes, the less likely they are to be promoted. This suggests senior leaders in the Air Force feel that

officers should spend more time within their respective career fields than learning about other aspects of the organization. However, career broadening jobs are limited, especially the highly prestigious ones that offer the greatest leadership development opportunities. Most individuals may have had only limited opportunities to engage in career broadening activities. This could also be an indication of why the odds of promotion increase as the number of career broadening jobs decrease. Furthermore, commanders may not wish to hire officers with to many career-broadening jobs for fear that those officers do not have sufficient knowledge of their career field.

Additionally, the models show that the conceptual interaction between the "number of career broadening jobs" and "career broadening prestige" variables does not exist. This means that an officer must either not engage in career broadening assignments or must pursue the career broadening assignments that are perceived to be the most prestigious in order for to increase their odds of being promoted.

Because of these contradicting results, it is difficult to determine if career broadening is actually developing the leadership abilities deemed valuable enough to the Air Force to warrant promotion. Since the highly prestigious career broadening assignments are very limited, a general conclusion could be that Air Force leaders feel that less career broadening is favorable.

Professional Military Education

The logistic regression models for the PME boards indicate that career broadening has no influence on an officer's odds of being selected for in-residence PME programs. This could be viewed as both good and bad. Officers who have taken low prestige or multiple career broadening assignments are not hindered during selection for education

programs that are designed to improve leadership skills. However, officers who have had career broadening assignments that may be developmental to their leadership skills or have never been exposed to other career fields in the Air Force have the same odds of selection to in-residence PME programs.

The PME programs are designed to build on an officer's leadership skills as they progress higher in the ranks (Department of the Air Force, 2002). The Air Force should look at its criteria for selecting officers for in-residence PME and consider the value of career broadening. If the Air Force begins to select officers with career broadening experiences for in-residence PME programs over those officers who have never career broadened, then officers may be encouraged to pursue assignments that broaden them and help build their leadership abilities.

The opposing results between the promotion and PME boards seem to indicate that the benefits of career broadening are perceived differently across the Air Force. The panel of Majors used to develop the quantitative "career broadening prestige" measure agreed that pursuit of a graduate degree at the Air Force Institute of Technology is not a career broadening experience, when this assignment option is listed as a career broadening opportunity in chapter 9 of AFI 36-2611, Officer Professional Development (Department of the Air Force, 1996). Additionally, the contradictions between the "number of career broadening jobs" and "career broadening prestige" variables in the promotion board models also indicated that Air Force leaders do not share a unified view of career-broadening's benefit to officer professional development.

The organizational "stovepipes" seem to continue to exist in the officer professional development framework. The Developing Aerospace Leaders initiative

discussed in chapter 2 does not seem to be having a major impact. Despite the benefits career broadening has to building officers with a breadth of skills that prepare them to tackle novel, ill-defined problems leaders must face, Air Force senior leaders seem more concerned with developing their officers in their specific career fields. The only exceptions senior leadership seems to make toward career broadening is when such assignments are in areas that expose them to high levels of the decision-making structure and political and international affairs.

Other Significant Variables

For each logistic regression model, Model 2 included only those variables that were statistically significant in Model 1 (at minimum of $p < .1$). The following is a synopsis of those variables from each model.

In the Major promotion board model, the "number of jobs" and "re-trained from another AFSC" variables were statistically significant ($p < .001$ and $p < .01$ respectively). The "number of jobs" variable indicated that the more jobs officers had in their duty history the lower their odds were for promotion to Major. The "re-trained" variable shows that officers who retrained from another AFSC had greater odds of being promoted.

In the Lt Col promotion board model, the "Board Zone," "Prior in-residence IDE," "Squadron commander during board," "Rated operations officer," "Joint staff assignment during the board," and "Air Staff assignment during the board" variables showed significant increases in promotion odds ($p < .001$, $p < .001$, $p < .001$, $p < .001$, $p < .05$, $p < .01$, $p < .05$ respectively). One variable indicated a significant decrease in odds of

promotion to Lt Col. The "number of jobs" variable showed that to many jobs in an officer's duty history decreased their odds of being promoted ($p < .001$).

In the Col promotion board model, the "Board Zone," "Prior IDE in-residence," "Prior SDE in-residence," "Prior squadron commander," and "Air Staff assignment during the board" variables significantly increased an officer's chances of being promoted to colonel ($p < .001$, $p < .001$, $p < .001$, $p < .001$, $p < .01$ respectively). Furthermore, the model shows that the more bases an officer is assigned to prior to the colonel promotion board, the lower their odds of being promoted becomes ($p < .05$).

The model in Table A4 shows that being an executive officer increases an officer's odds of being selected for in-residence IDE programs ($p < .01$). Additionally, being an executive officer at the time the board met to select officers for in-residence IDE increased an officer's odds of being selected ($p < .1$). Furthermore, being a rated operations officer (aircraft pilot or navigator career fields) also increased an officer's odds of being selected to in-residence PME programs ($p < .05$).

In order to increase one's odds of being selected to in-residence SDE programs, officers should ensure they have completed an in-residence IDE program and been a prior squadron commander ($p < .001$ for both variables). Furthermore, rated operations officers have greater odds of being selected to in-residence SDE programs ($p < .01$) according to Model 2 of the SDE selection board regression analysis.

These variables show some patterns that could be beneficial advice to Air Force officers when planning a career path. Completing in-residence PME and working as a squadron commander seem to be highly favorable assignments in the eyes of senior leaders who make promotion and in-residence PME selections. However, officers should

limit the number of job titles in their duty history, as there is evidence to suggest that too many job titles lower an officer's odds of promotion. Furthermore, rated operations officer seem to have an advantage in the PME selection process, perhaps due to the fact that there are more officers in the rated operations career fields than any other officer AFSC.

Limitations

This study focused entirely on elements of Air Force officer duty histories. The variables in the models give this study some face validity; however, other elements are influential in the promotion and in-residence PME selection processes. For instance, the recommendations of an officer's senior rating official were not included in this study. This aspect of the selection process should be incorporated and controlled for in future research concerning career broadening.

A single researcher coded the data for this study manually. The potential exists for human error in the data used in the logistic regression.

Furthermore, the random sample may be more biased towards the selected officers versus the non-selected officers. This may have introduced some bias in the results of this research. Further sampling may indicate different results.

Other limitations in the study will exist since it uses historical data to evaluate current officer development decisions and make recommendations for future courses of action. As a result, the data can only portray past practices and may be highly sensitive to current senior leader perspectives on officer leadership development.

Finally, the research aims at quantifying a subjective selection process. As views on leadership development methods change in the minds of Air Force senior leaders, the

results of this study may become more or less applicable. For this reason, research into the effects of career broadening must continue.

Future Research

Research on the influences of career broadening on officer development should continue in the future. This study is just a first glimpse into career broadening's affect on leadership development in Air Force officers. Surveys targeted at gathering more accurate assessments of the value of career broadening should be developed and implemented to develop measures of career broadening prestige that are more accurate. Such surveys should target Development Team members, senior leaders, and officers who have directly supervised other officers. These people have the greatest influence on assignment selection and competitive leadership opportunity selection.

The career broadening jobs listed in Table 5 are jobs that must be filled by officers. A possible research avenue would be to assess the developmental characteristics of these jobs to determine if they should be considered career broadening or supplemental jobs necessary for the Air Force's mission. McCauley, et al. (1994) developed an instrument called the Developmental Challenge Profile they used to look at features of jobs that foster learning about managerial skills and perspectives. Such an instrument could be adapted to assess the developmental benefit career broadening assignments have towards building essential leadership skills. The perceived benefits of career broadening are left up to the interpretations of each individual officer far too much. The results of such a study could determine if career broadening assignments perceived to have low prestige are better, worse or no different at developing leadership skills than career

broadening assignments perceived to have high prestige and vice versa. If career broadening is truly going to be the means by which the Air Force develops its leaders in the future, then the Air Force needs to communicate the developmental benefits career-broadening assignments provide.

Conclusion

Shrinking budgets have reduced the number of assignment rotations between Air Force bases an officer will experience in a typical career, as well as opportunities to pursue advanced academic degrees. This will reduce the opportunity for career broadening experiences potentially making career broadening more of a discriminator among those selected for advancement to higher leadership positions in the Air Force. The benefits of such experience should be communicated to Air Force officer more frequently through empirical evidence and mentoring.

Despite the limitations, the models are reliable. Their goodness-of-fit measures are adequate. Additionally, the "career broadening prestige" measure is reliable because it is based on inputs from officers who have experienced the rigors of the promotion and in-residence PME selection processes.

This study has aimed at providing empirical evidence to support the benefits of career broadening on developing leaders for the Air Force. With continued research, Air Force officers will be able to make better-informed decisions about the path their career should take to build the leadership skills the Air Force of tomorrow will need.

Appendix A; Table A1: Logistic Regression Results of Major Promotion Boards

Variables	Model 1				Model 2			
	β	Exp β	95.0% C.I. for EXP β Lower	Upper	β	Exp β	95.0% C.I. for EXP β Lower	Upper
Number of Career Broadening jobs	-3.898*	.020*	.001	.577	-3.692*	.025*	.001	.652
Career Broadening prestige (CBP)	.810*	2.248*	1.042	4.848	.782*	2.189*	1.092	4.388
#CB and CBP Interaction	-.004	.996	.733	1.352				
Board Year	.147	1.159	.458	2.934				
# Assignments	-.146	.865	.582	1.283				
# Jobs	-.516	.597***	.466	.765	-.498***	.608***	.492	.748
Re-trained	1.822+	6.186+	.768	49.798	1.535+	4.639+	.756	28.482
Executive Officer	.886	2.426	.309	19.068				
Executive officer during board	-1.571	.208	.013	3.367				
Prior Squadron commander	19.583	319753143.244	.000	.				
Squadron commander during board	-3.837	.022	.000	.				
Rated officer	.004	1.004	.332	3.032				
Joint staff tour	.180	1.197	.070	20.602				
Joint staff tour during board	20.040	505160021.711	.000	.				
Air Staff tour	-3.296	.037+	.001	1.430				
Air Staff tour during board	20.286	645726063.497	.000	.				
MAJCOM tour	-.912	.402	.074	2.195				
MAJCOM tour during board	.096	1.101	.172	7.060				
NAF staff tour	-.312	.732	.060	8.901				
NAF staff tour during board	.564	1.757	.016	193.038				
Constant	6.697	810.036***			5.778***	323.048***		
-2 Log-likelihood	135.815				144.918			
Cox & Snell R^2	207				.170			
Nagelkerke R^2	.345				.284			
Hosmer and Lemeshow Test (χ^2)	19.908 (.011)[a]				6.654 (.466)[a]			
Classification Percentage	86.9				85.4			

+p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

[a]significance level indicated in parentheses; a value greater than 0.05 indicates a well-fitting model

Blank Exp β coefficient values indicate that variable was removed in Model 2 of this data set

Appendix A; Table A2: Logistic Regression Results of Lt Col Promotion Boards

Variables	Model 1				Model 2			
	β	Exp β	95.0% C.I. for EXP β Lower	Upper	β	Exp β	95.0% C.I. for EXP β Lower	Upper
Number of Career Broadening jobs	-1.195	.303	.055	1.673	-.799	.450	.135	1.500
Career Broadening prestige (CBP)	.361*	1.435*	1.010	2.038	.24*	1.271*	1.016	1.589
#CB and CBP Interaction	-.019	.981	.932	1.033				
Board Zone	3.489***	32.744***	13.895	77.163	3.362***	28.840***	12.826	64.848
Board Year	-.210	.810	.445	1.476				
# Assignments	-.152	.859	.679	1.088				
# Jobs	-.178	.837**	.748	.936	-.201***	.818***	.734	.912
Re-trained	.321	1.379	.542	3.512				
Executive Officer	.354	1.425	.506	4.012				
Executive officer during board	-.793	.452	.037	5.573				
Prior IDE in-residence	2.735***	15.413***	6.705	35.430	2.512***	12.329****	5.726	26.546
Prior Squadron commander	-.143	.867	.201	3.731				
Squadron commander during board	2.236*	9.356*	1.682	52.040	1.951***	7.032***	2.668	18.537
Rated officer	.654+	1.922+	.904	4.086	.720*	2.055*	1.041	4.057
Joint staff tour	.003	1.003	.332	3.028				
Joint staff tour during board	1.606*	4.984*	1.340	18.543	1.450**	4.261**	1.813	10.017
Air Staff tour	-.556	.573	.203	1.619				
Air Staff tour during board	1.931**	6.896**	1.680	28.312	1.203*	3.330*	1.222	9.073
MAJCOM tour	-.092	.912	.431	1.929				
MAJCOM tour during board	.609	1.839	.659	5.129				
NAF staff tour	-.261	.770	.222	2.668				
NAF staff tour during board	1.099	3.002	.341	26.423				
Constant	-1.813+	.163+			-2.288**	.101**		
-2 Log-likelihood	293.268				301.037			
Cox & Snell R^2	.379				.367			
Nagelkerke R^2	.542				.525			
Hosmer and Lemeshow Test (χ^2)	8.189 (.415)[a]				7.078 (.528)[a]			
Classification Percentage	81.9				83.1			

+p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

[a]significance level indicated in parentheses; a value greater than 0.05 indicates a well-fitting model

Blank Exp β coefficient values indicate that variable was removed in Model 2 of this data set

Appendix A; Table A3: Logistic Regression Results of Colonel Promotion Boards

Variables	Model 1				Model 2			
	β	Exp β	95.0% C.I. for EXP β		β	Exp β	95.0% C.I. for EXP β	
			Lower	Upper			Lower	Upper
Number of Career Broadening jobs	-1.857*	.156*	.026	.924	-1.811**	.164**	.046	.585
Career Broadening prestige (CBP)	.326+	1.386+	.977	1.965	.316**	1.372**	1.099	1.713
#CB and CBP Interaction	-.003	.997	.946	1.050				
Board Zone	3.119***	22.621***	9.025	56.702	3.013***	20.342***	8.800	47.026
Board Year	-.093	.911	.455	1.825				
# Assignments	-.220+	.803+	.637	1.012	-.257*	.773*	.626	.956
# Jobs	.017	1.017	.913	1.132				
Re-trained	.260	1.297	.432	3.895				
Executive Officer	-.011	.989	.313	3.128				
Executive officer during board	2.373	10.729	.128	899.261				
Prior IDE in-residence	1.373***	3.946***	1.778	8.759	1.376***	3.960***	1.858	8.441
Prior SDE in-residence	2.670***	14.437***	5.872	35.496	2.678***	14.555***	6.410	33.050
Prior Squadron commander	2.307***	10.042***	3.429	29.406	2.543***	12.721***	4.709	34.362
Squadron commander during board	.774	2.168	.771	6.098				
Rated officer	-.125	.883	.386	2.018				
Joint staff tour	.217	1.243	.547	2.821				
Joint staff tour during board	.254	1.289	.417	3.980				
Air Staff tour	.960*	2.612*	1.087	6.274	1.031**	2.803**	1.385	5.675
Air Staff tour during board	.617	1.854	.497	6.910				
MAJCOM tour	.239	1.270	.580	2.779				
MAJCOM tour during board	.412	1.509	.498	4.573				
NAF staff tour	-.194	.824	.276	2.461				
NAF staff tour during board	-.327	.721	.055	9.485				
Constant	-5.382***	.005***			-4.418***	.012***		
-2 Log-likelihood	237.612				243.944			
Cox & Snell R^2	.409				.399			
Nagelkerke R^2	.607				.593			
Hosmer and Lemeshow Test (χ^2)	8.262 (.408)[a]				6.037 (.643)[a]			
Classification Percentage	84.8				85.0			

+p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

[a]significance level indicated in parentheses; a value greater than 0.05 indicates a well-fitting model

Blank Exp β coefficient values indicate that variable was removed in Model 2 of this data set

Appendix A; Table A4: Logistic Regression Results of IDE Selection Boards

Variables	Model 1				Model 2			
	β	Exp β	95.0% C.I. for EXP β Lower	Upper	β	Exp β	95.0% C.I. for EXP β Lower	Upper
Number of Career Broadening jobs	.193	1.212	.130	11.287	.185	1.203	.251	5.754
Career Broadening prestige (CBP)	-.237	.789	.493	1.263	-.106	.900	.657	1.231
#CB and CBP Interaction	.043	1.044	.969	1.124				
# Assignments	-.007	.993	.766	1.288				
# Jobs	.111	1.117	.978	1.277				
Re-trained	.332	1.394	.505	3.846				
Executive Officer	1.620**	5.055**	1.505	16.982	1.459**	4.300**	1.477	12.525
Executive officer during board	1.438+	4.213+	.842	21.076	1.290+	3.632+	.868	15.200
Prior Squadron commander	1.803	6.068	.121	303.967				
Squadron commander during board	-1.311	.270	.004	17.727				
Rated officer	.979*	2.661*	1.061	6.671	.739*	2.093*	1.050	1.172
Joint staff tour	-.731	.481	.067	3.469				
Joint staff tour during board	.508	1.662	.180	15.313				
Air Staff tour	1.654+	5.230+	.953	28.708	.763	2.145	.795	5.787
Air Staff tour during board	-.806	.447	.060	3.345				
MAJCOM tour	.800	2.225	.803	6.166				
MAJCOM tour during board	.781	2.184	.676	7.053				
NAF staff tour	.250	1.284	.263	6.274				
NAF staff tour during board	-.122	.885	.097	8.060				
Constant	-3.005**	.050**			-1.259***	.284***		
-2 Log-likelihood	215.423				235.178			
Cox & Snell R^2	.177				.092			
Nagelkerke R^2	.246				.127			
Hosmer and Lemeshow Test (χ^2)	12.923 (.115)[a]				5.913 (.550)[a]			
Classification Percentage	71.1				70.6			

+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

[a] significance level indicated in parentheses; a value greater than 0.05 indicates a well-fitting model

Blank Exp β coefficient values indicate that variable was removed in Model 2 of this data set

Appendix A; Table A5: Logistic Regression Results of SDE Selection Boards

Variables	Model 1				Model 2			
			95.0% C.I. for EXP β				95.0% C.I. for EXP β	
	β	Exp β	Lower	Upper	β	Exp β	Lower	Upper
Number of Career Broadening jobs	.049	1.051	.076	14.491	.206	1.299	.234	6.461
Career Broadening prestige (CBP)	-.011	.989	.646	1.515	.011	1.011	.754	1.354
#CB and CBP Interaction	.020	1.020	.935	1.113				
# Assignments	.045	1.046	.677	1.617				
# Jobs	-.167	.846	.690	1.038				
Re-trained	-.158	.854	.119	6.123				
Executive Officer	.921	2.512	.433	14.587				
Executive officer during board	.150	1.162	.107	12.593				
Prior IDE in-residence	2.320***	10.173***	3.016	34.313	1.936***	6.933***	2.573	18.684
Prior Squadron commander	2.539**	12.670**	2.075	77.375	2.452***	11.606***	3.163	42.588
Squadron commander during board	.515	1.674	.369	7.587				
Rated officer	2.330*	10.279*	1.692	62.443	1.458**	4.298**	1.474	12.536
Joint staff tour	-.123	.885	.204	3.834				
Joint staff tour during board	-.311	.732	.118	4.554				
Air Staff tour	-.985	.373	.073	1.909				
Air Staff tour during board	2.360+	10.594+	.948	118.377	1.218	3.380	.718	15.901
MAJCOM tour	.178	1.195	.299	4.775				
MAJCOM tour during board	-.722	.486	.038	6.226				
NAF staff tour	-.384	.681	.064	7.278				
NAF staff tour during board	-22.325	.000	.000	.				
Constant	-3.638+	.026+			-5.073***	.006***		
-2 Log-likelihood	92.591				104.548			
Cox & Snell R^2	.339				.281			
Nagelkerke R^2	.516				.427			
Hosmer and Lemeshow Test (χ^2)	17.464 (.026)[a]				3.286 (.857)[a]			
Classification Percentage	87.9				83.0			

+p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

[a]significance level indicated in parentheses; a value greater than 0.05 indicates a well-fitting model

Blank Exp β coefficient values indicate that variable was removed in Model 2 of this data set

References

Barling, J., Weber, T., & Kelloway, E. K. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. *Journal of Applied Psychology, 81*, 827-832.

Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications* (3rd Edition). New York: The Free Press.

Bennis, W., & Nanus, B. (1985). *Leaders: The strategies for taking charge*. New York: Harper and Row.

Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology, 89*(5), 901.

Brown, L. M., & Posner, B. Z. (2001). Exploring the relationship between learning and leadership. *Leadership & Organization Development Journal, 22*(5/6), 274.

Builder, C. H. (1994). *The Icarus Syndrome: The role of air power theory in the evolution and fate of the U.S. air force*. New Brunswick and London: Transaction Publishers.

Burke, S. C., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What types of leadership behaviors are funtional in teams? A meta-analysis. *The Leadership Quarterly, 17*(3), 288-307.

Cacioppe, R. (1998). An integrated model and approach for the design of effective leadership development programs. *Leadership & Organization Development Journal, 19*(1), 44.

Campion, M. A., Cheraskin, L., & Stevens, M. J. (Dec 1994). Career-related antecedents and outcomes of job rotation. *Academy of Management Journal, 37*(6), 1518-1542.

Collins, D. B. (Summer 2004). The effectiveness of managerial leadership development programs: A meta-analysis of studies from 1982 to 2001. (Doctor of Philosophy, Louisiana State University). *Human Resource Development Quarterly, 15* (2), 217.

Conger, J. (2004). Developing leadership capability: What's inside the black box? *Academy of Management Executive, 18*(3), 136.

Correll, J. T. (December 2001, Developing aerospace leaders. *AIR FORCE Magazine,* 62-66.

Davies, J., & Easterby-Smith, M. (1984). Learning and developing from managerial work experiences. *Journal of Management Studies, 2*, 169-183.

Day, D. V. (2000). Leadership development: A review in context. *The Leadership Quarterly, 11*(4), 581.

Department of the Air Force. (8 June 2004). *Air force instruction 36-2201, volume 5: Air force training program career field education and training.* Washington: HQ USAF.

Department of the Air Force. (27 June 2002). *Air force instruction 36-2301: Professional military education*. Washington: HQ USAF.

Department of the Air Force. (16 July 2004). *Air force instruction 36-2501: Officer promotions and selective continuations*. Washington: HQ USAF.

Department of the Air Force. (1 May 2005). *Force development guide on force development*. Washington D.C.: HQ USAF/DPAFF.

Department of the Air Force. (1 June 2001). *Air force instruction 36-3401: Air force mentoring*. Washington: HQ USAF.

Department of the Air Force. (1 April 1996). *Air force instruction 36-2611: Officer professional development.* Washington: HQ USAF.

Fulmer, R. M., & Vicere, A. (1996). *Strategic leadership development: Crafting competitiveness*. Oxford: Capstone.

Hernez-Broome, G., & Hughes, R. L. (2004). Leadership development: Past, present, and future. *Human Resource Planning, 27*(1), 24-32.

Hirst, G., Mann, L., Bain, P., Pirola-Merlo, A., & Richver, A. (June 2004). Learning to lead: The development and testing of a model of leadership learning. *The Leadership Quarterly, 15*(3), 311-327.

Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2nd Edition). New York: John Wiley & Sons, Inc.

Janowitz, M. (1960). *The professional soldier: A social and political portrait*. Glencoe, IL: The Free Press.

Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology, 85*, 751-765.

Kelleher, D., Finestone, P., & Lowy, A. (1986). Managerial learning: First notes from an unstudied frontier. *Group and Organization Studies, 11*, 169-202.

Lindsey, E., Homes, V., & McCall, Morgan W., Jr. (1987). *Key events in executive lives* No. Technical Report #32). Greensboro, NC: Center for Creative Leadership.

McCall, Morgan W., Jr. (2004). Leadership development through experience. *Academy of Management Executive, 18*(3), 127-130.

McCall, Morgan W., Jr. (1992). Executive development as a business strategy. *The Journal of Business Strategy, January/February,* 25-31.

McCall, Morgan W., Jr. (1988). *Developing executives through work experience* (Technical Report No. 33). Greensboro, NC: Center for Creative Leadership.

McCall, Morgan W., Jr., Lombardo, M. M., & Morrison, A. (1988). *The lessons of experience*. Lexington, MA: Lexington Books.

McCauley, C. D., Ruderman, M. N., Ohlott, P. J., & Morrow, J. E. (1994). Assessing the developmental components of managerial jobs. *Journal of Applied Psychology, 79,* 544-560.

Moskos, C. C., & Wood, F. R. (1988). *The military: More than just a job?*. Washington, D.C.: Pergamon-Brassey's International Defense Publishers.

Mumford, M. D., Marks, M. A., Connelly, M. S., Zaccaro, S. J., & Reiter-Palmon, R. (Spring 2000). Development of leadersip skills, experience and timing. *The Leadership Quarterly, 11*(1), 87-114.

Mumford, M. D., Zaccaro, S. J., Harding, F. D., Jacobs, T. O., & Fleishman, E. A. (2000). Leadership skills for a changing world: Solving complex social problems. *The Leadership Quarterly, 11*(1), 11-35.

Murrell, A. J., Frieze, I. H., & Olsen, J. E. (1996). Mobility strategies and career outcomes: A longitudinal study of MBA's. *Journal of Vocational Behavior, 49,* 324-335.

Ohlott, P. J. (Nov/Dec 2003). Answering the call: Job assignments that grow leaders. *Leadership in Action, 23*(5), 19.

Ohlott, P. J. (2004). Job assignments. In C. D. McCauley, & E. Van Velsor (Eds.), *The center for creative leadership handbook of leadership development* (2nd ed., pp. 151-182). San Francisco, CA: Jossey-Bass.

Ryan, General Michael E. (13 Oct 1999). *Developing aerospace leaders charter*. Unpublished manuscript.

Sullivan, S. E. (1999). The changing nature of careers: A review and research agenda. *Journal of Management, 25*(3), 457-484.

Thirtle, M. (Summer 2001). Developing aerospace leaders for the twenty-first century. *Aeorspace Power Journal*,

Weaver, N. E. (April 2001). *Developing aerospace leaders for the twenty-first century*National Defense Fellow - Rand Corporation.

Yukl, G. A. (2002). *Leadership in organizations* (5th Edition). New Jersey: Prentice-Hall Inc.

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14. ABSTRACT

The goal of this research was to improve the Air Force's knowledge of the effects of career broadening jobs on the leadership development of its officer corps. Specifically, the study sought to find significant relationships between incidents of career broadening in the officers' background and their odds of being selected for promotion and in-residence professional military education (PME). Selection under these two areas is considered recognition of an officer's ability to handle more responsibility and greater leadership challenges. Therefore, they are logical assessments of an officer's leadership development. Duty histories of officers who met the Major, Lieutenant Colonel, and Colonel promotions boards in 2004 and 2005, as well as, those officers who competed for selection to in-residence PME programs at the intermediate and senior development levels in 2003 and 2004, were analyzed to determine the impact on the odds of selection provided by career broadening experiences.

Results indicate that the Air Force needs to communicate the value of career broadening more effectively to its officers. Additionally, the developmental aspects of career broadening jobs should be explored in the future.

15. SUBJECT TERMS

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